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10/796,350	03/08/2004	Rajeev K. Nalawadi	42P18572	2026

8791 7590 05/05/2006		EXAMINER	
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
	10/796,350	NALAWADI ET AL.
Office Action Summary	Examiner	Art Unit	
	Faisal Zaman	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>27 March 2006</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-23</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-23</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>08 March 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's argument, see page 6, filed 3/27/2006, with respect to the rejection(s) of claim(s) 1 under 35 U.S.C. 102(b) concerning the limitation "identifying a resource in a computer system that is capable of generating an interrupt" has been fully considered and is persuasive. Therefore, that portion of the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Marisetty in view of Carpenter (U.S. Patent No. 6,148,361).

2.   Applicant's argument filed 3/27/2006 with regards to Claim 1 and the limitation "configuring the resource to access the address range" has been fully considered but it is not persuasive. Contrary to Applicant's argument, Marisetty does in fact teach this limitation. The step of the resource (ie. the application) accessing the address range (see Marisetty, Column 7, lines 45-49 and lines 55-56) is equivalent to "configuring the resource to access the address range".

3.   Applicant's arguments filed 3/27/2006 with regards to Claims 7 and 20 have been fully considered but they are not persuasive. Contrary to Applicant's argument, Stanley does in fact teach the limitation "invoking an advanced configuration and power interface source language (ASL) code assigned to the address access request (see Stanley, Column 11, lines 5-65). Stanley teaches that when for example a process attempts to access the General Purpose Event register (bit 4 of the General Purpose Event0_STS events [see Column 11, lines 43-44]), a System Control Interrupt is asserted (see Column 11, lines 7-8). This bit corresponds to an address in the

computer's memory (see Column 10 line 63 – Column 11 line 4). In response to the

System Control Interrupt being asserted, an ACPI control method (which is well known

in the art to be written in ACPI Machine Language, which is a low-level version of ASL,

as noted in the original Office Action) is executed (see Column 11, lines 44-65).

Therefore, Claim 7 stands as previously rejected.

4.   In response to Applicant's arguments against the references individually (ie.

Claim 14 - that Marisetty does not teach an OS-level interrupt handler module), one

cannot show nonobviousness by attacking references individually where the rejections

are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208

USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir.

1986). An OS-level handler is taught in the disclosure of Stanley, see Column 11, lines

5-65 (ie. the General Purpose Event handler) as discussed in the original Office Action.

5.   Applicant's arguments filed 3/27/2006 concerning Claim 17 have been fully

considered but they are not persuasive. Contrary to Applicant's argument, Stanley

teaches an operating system module executed by the processor to register a device

driver to manage a system resource (Column 11, lines 12-15), the operating system

module invoking the ACPI module (ie. the module executing the control method) when a

memory access is received that corresponds to an address range registered by the

device driver. Therefore, Claim 17 stands as previously rejected.

6.   Applicant's arguments filed 3/27/2006 regarding the motivation to combine have

been fully considered but they are not persuasive. The examiner respectively believes

the motivation to combine the Marisetty and Stanley references (as attempting to

achieve a common goal [e.g. software assisted solutions for hardware problems])

discussed in the original Office Action is appropriate, however to further clarify, it would

also be obvious to one of ordinary skill in the art to be motivated to combine Stanley

with Marisetty for the purpose of increased power management capabilities in the

computer system of Marisetty through the use of the ACPI standard.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 20-23 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. In Applicant's Specification, Page 13,

paragraph 0035, lines 5-6, Applicant describes a "machine-readable medium" as being

able to take the form of a "wireless device, infrared device, and similar storage and

transmission technologies". The examiner suggests Applicant to specify in the claims a

tangible item, such as a "recordable type storage media".

Appropriate corrections are therefore required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form

the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claims 17 and 19** are rejected under 35 U.S.C. 102(b) as being anticipated by

Stanley (U.S. Patent No. 6,219,742).

Regarding Claim 17, Stanley discloses a system (Figure 1) comprising:

A processor (Column 19, line 18);

A memory device coupled to the processor (Column 19, lines 23-30);

An advanced configuration and power interface (ACPI) module to manage power

management resources (Figure 1, items 110-116, Column 4, lines 30-40); and

An operating system module executed by the processor to register a device

driver to manage a system resource, the operating system module invoking the ACPI

module when a memory access is received that corresponds to an address range

registered by the device driver (Column 11, lines 12-15 and 32-37).

Regarding Claim 19, Stanley discloses wherein the address range is a system

memory address range (Column 10 line 63 – Column 11 line 4).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. **Claims 1, 2, and 4** are rejected under 35 U.S.C. 102(b) as being unpatentable over

Marisetty (U.S. Patent No. 5,590,312) in view of Carpenter et al. ("Carpenter") (U.S.

Patent No. 6,148,361).

Regarding Claim 1, Marisetty discloses a method comprising:

Assigning an address range to a resource (Marisetty, Column 7, lines 39-42);

Configuring the resource to access the address range (Marisetty, Column 7, lines

45-49 and lines 55-56); and

Generating the interrupt if the address range is accessed (Marisetty, Column 7,

lines 45-49).

Marisetty does not expressly disclose identifying a resource in a computer

system that is capable of generating an interrupt.

In the same field of endeavor (e.g. an interrupt architecture for a data processing

system), Carpenter teaches identifying a resource in a computer system that is capable

of generating an interrupt (Carpenter, Figure 7, item 302, Column 13, lines 6-9).

Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have combined Carpenter's teachings of an interrupt

architecture for a data processing system with the teachings of Marisetty, for the

purpose of providing an interrupt handling mechanism in a computer system that

provides efficient mechanisms for interrupt routing and communication (see Carpenter,

Column 1, lines 51-54). Further, it would be obvious to one of ordinary skill in the art to

combine for the purpose of improved task management (by knowing exactly which and

how many resources can generate interrupts) in the system of Marisetty.

Regarding Claims 2 and 4, Marisetty discloses wherein the address range is an

input output address ranges and system memory address range (Marisetty, Column 7,

lines 39-42).

Claim Rejections - 35 USC § 103

12. **Claims 3, 5-6, and 11-13** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Marisetty in view of Carpenter (hereafter referred to as "Marisetty-

Carpenter"), and further in view of Stanley.

Regarding Claim 3, Marisetty-Carpenter discloses the method of Claim 1 as

discussed above. Marisetty does not expressly disclose the method further comprising

correlating an advanced configuration and power interface source language code

method with an address range.

In the same field of endeavor (e.g. software control of hardware in a computer

system), Stanley teaches correlating an advanced configuration and power interface

source language code method with an address range (Stanley, Column 4, lines 44-52,.

ie. the addresses of the register blocks).

Accordingly, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have combined Stanley's teachings of software control

of hardware in a computer system with the teachings of Marisetty-Carpenter, for the

purpose of having software assisted solutions to hardware-related problems in order to

mitigate risk (see Stanley, Column 3, lines 1-3). Marisetty-Carpenter also provides

motivation to combine by stating it is an object of the invention to provide software

emulation in place of unavailable hardware in order to use less circuitry (see Marisetty,

Column 2, lines 46-49).

Regarding Claim 5, Stanley discloses the following limitation, which Marisetty-

Carpenter does not expressly disclose:

Correlating a system control interrupt with an advanced configuration and power

interface source language code method (Stanley, Column 1 line 64 – Column 2 line 6,

and Column 5, lines 38-46, an ASL code method is used when the system is in ACPI

mode [see Column 4, lines 23-27]).

The motivation used in the combination of Claim 3, super, applies equally as well

to Claim 5.

Regarding Claim 6, Stanley discloses the following limitation, which Marisetty-

Carpenter does not expressly disclose:

Registering a device driver for the address range by the operating system

(Stanley, Column 10, lines 25-44).

The motivation used in the combination of Claim 3, super, applies equally as well

to Claim 6.

Claims 11-13 are directed to an apparatus of the method of Claims 1-6.

Marisetty, Carpenter, and Stanley teach, either alone or in combination as stated above,

the method as set forth in Claims 1-6. Therefore, Marisetty, Carpenter, and Stanley

also teach, either alone or in combination as stated above, an apparatus as set forth in

Claims 11-13.

Claim Rejections - 35 USC § 103

13. **Claims 7-10, 14-16, 18, and 20-23** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Marisetty in view of Stanley.

Regarding Claim 7, Marisetty discloses a method comprising:

Receiving an interrupt from an address access request (Marisetty, Column 8,

lines 5-9);

Determining the source of the interrupt based on the address access request

(Marisetty, Column 8, lines 11-13); and

Invoking code assigned to the address access request (Marisetty, Column 8,

lines 13-16).

Marisetty does not expressly disclose invoking an advanced configuration and

power interface source language (ASL) code to the address access request.

In the same field of endeavor, Stanley teaches invoking an advanced

configuration and power interface source language (ASL) code to an address access

request (Stanley, Column 11, lines 5-65, it is well known in the art that a control method

is written in ACPI Machine Language, which is a low-level version of ASL, as evidenced

by the ACPI Specification pages 13 and 14, cited below under Relevant Art).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Stanley's teachings of software control of hardware in a computer system with the teachings of Marisetty, for the purpose of having software assisted solutions to hardware-related problems in order to mitigate risk (see Stanley, Column 3, lines 1-3). Marisetty also provides motivation to combine by stating it is an object of the invention to provide software emulation in place of unavailable hardware in order to use less circuitry (see Marisetty, Column 2, lines 46-49).

Regarding Claim 8, Stanley teaches notifying a source of the address access that the ASL code (ie. the control method) completed (Stanley, Column 11, lines 33-37).

Regarding Claims 9 and 10, Marisetty discloses wherein the address access request is an input output address request and wherein the address access request is a system memory address request (Column 7, lines 39-42).

Regarding Claim 14, Marisetty discloses a device comprising:

A code segment to handle a request of a resource (Marisetty, Column 8, lines 5-9, ie. the code located within the I/O controller 404);

An address protection module to manage the protection of an address space (Marisetty, Column 8, lines 9-11, the I/O trap logic 408); and

An operating system level interrupt handler module to receive an interrupt when

the address protection module detects an address space access and to invoke the code

segment corresponding to the address space access (Marisetty, Column 8, lines 11-16,

the SMM handler).

Marisetty does not expressly disclose wherein the code segment used to handle

a request of a resource is an advanced configuration and power interface source

language (ASL) code segment; and

The code segment that is invoked is an ASL code segment.

In the same field of endeavor, Stanley teaches an advanced configuration and

power interface source language (ASL) code segment to handle a request of a resource

(Stanley, Column 11, lines 5-65); and

An operating system level interrupt handler module to receive an interrupt when

a module detects an address space access and to invoke the ASL code segment

corresponding to the address space access (Stanley, Column 11, lines 5-65, ie. the

General Purpose Event handler).

The motivation used in the combination of Claim 7, super, applies equally as well

to Claim 14.

Regarding Claim 15, Marisetty discloses wherein the address protection module

is an input output protection module that generates a general protection fault (Marisetty,

Column 8, lines 5-16, it is well known in the art that a general protection fault is an

interrupt [or exception] that is initiated when a device attempts to access a protected I/O

address).

Regarding Claim 16, Marisetty discloses wherein the address protection module

is a memory protection module that generates a page fault (Marisetty, Column 7, lines

54-63, it is well known in the art that a page fault is an interrupt [or exception] that is

initiated when a device attempts to access a protected system memory address).

Regarding Claim 18, Marisetty teaches wherein the address range is an input

output address range (Marisetty, Column 7, lines 39-42).

The motivation utilized in the combination of Claim 7, super, applies equally as

well to Claim 18.

Claims 20-23 are directed to a machine readable medium containing instructions

to execute the method of Claims 7-10. Marisetty and Stanley teach, either alone or in

combination as stated above, the method as set forth in Claims 7-10. Therefore,

Marisetty and Stanley also teach, either alone or in combination as stated above, a

machine readable medium as set forth in Claims 20-23.

Relevant Art/Prior Art of Record

14. The Advanced Configuration and Power Interface Specification, Revision 2.0b,

October 11, 2002 is cited as relevant art.

15. The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure. Wilcox et al. (U.S. Patent No. 5,764,999) discloses an enhanced

system management mode with nesting. Lewis (U.S. Patent No. 6,167,511) discloses a

method to reflect BIOS set up changes into ACPI machine language. Nijhawan (U.S.

Patent No. 6,185,677) discloses automatic generation of ACPI source language for

peripheral resource configuration. Holm et al. (U.S. Patent Publication No.

2002/0152334) discloses a method for PCI bus detection in a logically partitioned

system. Ewertz (U.S. Patent No. 6,499,102) discloses a method of dynamically

changing the lowest sleeping state in ACPI. Tyner (U.S. Patent No. 6,564,276)

discloses access restriction of environmental circuits. Zimmer et al. (U.S. Patent

Publication No. 2003/0188173) discloses a hardened extended firmware interface

framework. O'Shea (U.S. Patent Publication No. 2004/0128568) discloses a method for

firmware control invocation from power management. McKee et al. (U.S. Patent No.

6,772,372) discloses a system and method for monitoring unaligned memory accesses.

Culter et al. (U.S. Patent Publication No. 2004/0243534) discloses a system and

method for generating ACPI machine language tables. "I/O Ports Blocked from BIOS

AML", by Microsoft Corporation, discloses a method of protecting critical I/O addresses

in a computer system.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Faisal Zaman whose telephone number is 571-272-

6495. The examiner can normally be reached on Monday thru Friday, 8 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Rehana Perveen can be reached on 571-272-3676. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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FMZ